UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/721,968	11/24/2003	James L. Fergason	VEIAP103USC	6978

45253 7590 08/12/2010

WARREN SKLAR
RENNER, OTTO, BOISSELLE & SKLAR, LLP
1621 EUCLID AVE
19TH FL
CLEVELAND, OH 44115

EXAMINER	
KARIMI, PEGEMAN	
ART UNIT	**PAPER NUMBER**
2629	

MAIL DATE	DELIVERY MODE
08/12/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/721,968	FERGASON, JAMES L.	
	Examiner	Art Unit	
	PEGEMAN KARIMI	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 June 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-6,8-11,13-21,24,28,29,31 and 35-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 3-6, 8-11, 13-21, 24, 28, 29, 31, 35-40* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The amendment filed on June 4, 2010 has been entered and considered by the examiner.

Claim Objections

2. Claim 1 is objected to because of the following informalities: The term “the linear axis” on line 11 should change to “the common linear axis”.

Claims 1, 3-6, and 40 are objected to because they depend upon an objected claim 1.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 8 recites the limitation "said angle" in lines 6-7. There is insufficient antecedent basis for this limitation in the claim.

Claim 9 has been rejected because it depends upon a rejected claim 8.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1, 3-6, 16, 17, 19, 20, 35, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Christie (U.S. Patent No. 6,593,957) in view of DeGroof (U.S. Patent No. 5,598,282), and further in view of Grimm (U.S. Patent No. 5,638,082).

As to claim 1, Christie teaches a display system comprising:

a pair of displays (displays of lamps 200r and 200l), and

a beam splitter (207) so positioned relative to the two displays at the bisectrix of said angle (as can be seen in Fig. 3 the beam splitter is located at the bisectrix of the two displays) to combine images from the displays (the two images of the displays are combined as can be seen with the black and dotted arrows) whereby one image is transmitted by the beam splitter (the black arrow from 200l is transmitted) and the other image is reflected by the beam splitter (the dotted arrow is reflected by the beam splitter) to provide direct view of images from the displays (the beam splitter directs both images in parallel).

Wherein the displays (displays of lamps 200r and 200l) each output polarized light incident on the beam splitter (the output polarizer's of image LCDs 205r and 205l are oriented in orthogonal directions toward beam splitter 207), (col. 9, lines 13-16), the

polarization of the light incident on the beam splitter from each display being along the same direction (the outputted polarized light is combined by beam splitter 207 wherein the light is directed in a light path toward a projection lens or lens assembly 210, thus the output polarized light are along the same direction toward the lens assembly 210), (col. 9, lines 15-17); and

Wherein the images can be separated based on polarization (the images are separated based on the polarization wherein the images polarized by the display of lamp 200r are received by the right eye (view zone V_r) and the images polarized by the display of lamp 200l are received by the left eye (view zone V_l),

Christie does not mention the displays being at an obtuse angle to each other.

DeGroof teaches the displays being at an obtuse angle to each other (Fig. 3C, col. 2, lines 63-64).

Degroof also teaches wherein the displays and the beam splitter are in respective planes that are parallel to a common linear axis (as can be seen in Fig. 3B, the displays 1 and 3 along with the beam splitter and common linear axis 13 are parallel to each other in the direction of Z-axis),

Therefore it would have been obvious to one of ordinary skilled in the art at the time the invention was made to have added the angle between the displays to be an obtuse angle of DeGroof to the display system of Christie because in order to have a normal viewing the displays are opened to an obtuse angle (col. 2, lines 66-67).

Christie and Degroof do not mention the polarization of the light incident is at a 45 degree to the linear axis.

Grimm teaches a vectograph film 4 disposed directly in front of the LCD, therefore one skilled in the art would be able to place the film 4 in front of the LCDs 205r and 205l so that the polarization axis of the polarization is rotated by 45 degree (col. 6, lines 44-46), (since the angle of the polarization is 45 degrees with respect to a horizontal polarization axis of filter 2, therefore the angle of the polarization is 45 degrees with respect to a vertical axis as well, which could be the common linear axis of DeGroof). Therefore it would have been obvious to one of ordinary skilled in the art at the time the invention was made to have added the film 4 of Grimm to the LCDs of Christie as modified by DeGroof because to provide a compact image display device which provides stereoscopic viewing with an excellent stereoscopic viewing impression (col. 2, lines 8-10).

As to claim 3, DeGroof teaches the displays are at an angle greater than 90 degrees to about 170 degrees relative to each other (the displays have an angle between 90 and 120 degrees), (col. 2, lines 66-67).

As to claim 4, DeGroof teaches the displays are at an angle of from about 110 degrees to about 140 degrees relative to each other (the displays have an angle between 90 and 120 degrees), (col. 2, lines 66-67).

As to claim 5, DeGroof teaches the displays are at an angle of approximately 120 degrees relative to each other (the displays have an angle between 90 and 120 degrees), (col. 2, lines 66-67).

As to claim 6, Christie teaches the displays are flat panel LCDs (col. 9, lines 9-12).

As to claims 16 and 35, Christie teaches a method of displaying stereo images, comprising:

simultaneously (the image beams are polarized at the same time) displaying a left image on a first display (image of 200l is displayed from 205l), the first display having a length and a width (as can be seen in Fig. 2A, the polarizer 160 and liquid crystal element 162 are located in front of the displays therefore the displays have a length and width) and a right image on a second display (image of 200r is displayed from 205r), the second display having a length and a width (as can be seen in Fig. 2A, the polarizer 160 and liquid crystal element 162 are located in front of the displays therefore the displays have a length and width) such that the left and right images have the optical polarization in the same direction (col. 9, lines 13-14), and

using a beam splitter (207) so positioned relative to the first and second displays (see fig. 3) that one can be viewed directly through the beam splitter (the beam indicated by a black arrow outputted from 205l) and the other can be viewed by reflected light from the beam splitter (the beam indicated by a dotted arrow outputted from 205r)

combining those images in a common light path (the two beams are combined and are transmitted in parallel) such that the optical polarization of the left image portion and the right image portion are different (col. 9, lines 31-33) in such common light path such that the image portions can be separated based on optical polarization (displaying the right-eye and left-eye image), (col. 9, lines 9-12).

Christie does not mention the displays being at an obtuse angle to each other.

DeGroof teaches the displays being at an obtuse angle to each other (Fig. 3C, col. 2, lines 63-64). Therefore it would have been obvious to one of ordinary skilled in the art at the time the invention was made to have added the angle between the displays to be an obtuse angle of DeGroof to the display system of Christie because in order to have a normal viewing the displays are opened to an obtuse angle (col. 2, lines 66-67).

Christie and Degroof do not mention the optical polarization of the light incident is at an angle of 45 degrees relative to the length and width of the displays.

Grimm teaches a vectograph film 4 disposed directly in front of the LCD, therefore one skilled in the art would be able to place the film 4 in front of the LCDs 205r and 205l so that the polarization axis of the polarization is rotated by 45 degree (col. 6, lines 44-46), (since the angle of the polarization is 45 degrees with respect to a horizontal polarization axis of filter 2, which could be the width of the display, therefore the angle of the polarization is 45 degrees with respect to a vertical axis as well, which could be the common linear axis of DeGroof or length of the display).

As to claim 35, it additionally recites "the left and right images have optical polarization along the same direction"

Christie teaches the left and right images (images from display of light bulbs 200r and 200l) have optical polarization along the same direction (the direction of the polarized lights from the two displays of lamps 200r and 200l is toward a projection lens assembly 210).

As to claim 17, Christie teaches discriminating the respective images in the common light path using optical polarization (205r displays the right-eye image and 205l displays the left-eye image), (col. 9, lines 9-14).

As to claims 19 and 36, Christie teaches a method of presenting a stereoscopic image for viewing, comprising:

presenting a left eye image on a display (image outputted from 205l),

presenting a right eye image on another display (image outputted from 205r),

the displays both having a length and a width (as can be seen in Fig. 2A, the polarizer 160 and liquid crystal element 162 are located in front of the displays therefore the displays have a length and width),

both said presenting steps presenting such images having optical polarization in the same direction (both output polarizations of the image LCDs are in orthogonal directions, col. 9, lines 13-14), and

using a beam splitter (207) that is so positioned relative to the two displays (the beam splitter is positioned between the two displays, see fig. 3) combining in a substantially common light path (the two beams are combined and turned into a parallel form) the respective images such that the respective images in the common light path have different optical polarization (col. 9, lines 32-33), (polarization in a vertically and horizontally orientation), whereby

the images can be separated based on polarization so that one image can be viewed directly through the beam splitter by one eye (the beam represented by Black arrow is polarized by LCD 205l and displaying the left-eye image) and the other can be viewed by reflected light from the beam splitter by the other eye (the beam represented by dotted arrow is polarized by LCD 205r and displaying the right-eye image).

Christie does not mention the displays being at an obtuse angle to each other.

DeGroof teaches the displays being at an obtuse angle to each other (Fig. 3C, col. 2, lines 63-64). Therefore it would have been obvious to one of ordinary skilled in the art at the time the invention was made to have added the angle between the displays to be an obtuse angle of DeGroof to the display system of Christie because in order to have a normal viewing the displays are opened to an obtuse angle (col. 2, lines 66-67).

Christie and Degroof do not mention the optical polarization of the light incident is at an angle of 45 degrees relative to the length and width of the displays.

Grimm teaches a vectograph film 4 disposed directly in front of the LCD, therefore one skilled in the art would be able to place the film 4 in front of the LCDs 205r

and 205l so that the polarization axis of the polarization is rotated by 45 degree (col. 6, lines 44-46), (since the angle of the polarization is 45 degrees with respect to a horizontal polarization axis of filter 2, which could be the width of the display, therefore the angle of the polarization is 45 degrees with respect to a vertical axis as well, which could be the common linear axis of DeGroof or length of the display).

As to claim 36, it additionally recites the limitation of "both said presenting steps presenting such images having optical polarization along the same direction"

Christie teaches both said presenting steps presenting such images having optical polarization along the same direction (the direction of the polarized lights from the two displays of lamps 200r and 200l is toward a projection lens assembly 210).

As to claim 20, Christie teaches discriminating between the left eye image and right eye image for viewing by respective left and right eyes the respective left and right eye images from the light in the common light path (205r displays the right-eye image and 205l displays the left-eye image), (col. 9, lines 9-14).

6. Claims 8-9, 18, 21, 28, 29, 31, 37, and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Christie in view of DeGroof and further in view of Grimm (U.S. Patent No. 5,638,082) and Jachimowicz (U.S. Patent No. 4,995,718).

As to claims 8, 28, and 37, Christie teaches a display system comprising:

a pair of displays (displays of lamps 200r and 200l), the displays both having a length and a width (as can be seen in Fig. 2A, the polarizer 160 and liquid crystal element 162 are located in front of the displays therefore the displays have a length and width),

having a polarized light outputs (col. 9, lines 13-14), the polarization direction for the light output by both displays being the same (both output polarizations of the image LCDs are directed toward a projection lens assembly 210, therefore the output polarization of the displays is the same directed toward the lens assembly 210); and

a beam splitter (207) so positioned relative to the two displays at the bisectrix of said angle (beam splitter is located at the bisectrix of the two displays, Fig. 3) to combine images from the displays whereby one image is transmitted by the beam splitter (the black arrow represents polarized output light and is transmitted by the beam splitter 207) and the other image is reflected by the beam splitter (the dotted line arrow represents polarized output light and is reflected by the beam splitter 207) to provide direct view of images from the displays (the polarized lights are re routed for a direct view as can be seen in Fig. 3); and

the LCDs (col. 9, lines 9-12).

Christie does not mention the displays being at an obtuse angle to each other.

DeGroof teaches the displays being at an obtuse angle to each other (Fig. 3C, col. 2, lines 63-64). Therefore it would have been obvious to one of ordinary skilled in the art at the time the invention was made to have added the angle between the displays to be an obtuse angle of DeGroof to the display system of Christie because in

order to have a normal viewing the displays are opened to an obtuse angle (col. 2, lines 66-67).

Christie and Degroof do not mention the polarization direction for the light output is at an angle of 45 degrees relative to the length and width.

Grimm teaches a vectograph film 4 disposed directly in front of the LCD, therefore one skilled in the art would be able to place the film 4 in front of the LCDs 205r and 205l so that the polarization axis of the polarization is rotated by 45 degree (col. 6, lines 44-46), (since the angle of the polarization is 45 degrees with respect to a horizontal polarization axis of filter 2, which could be the width of the display, therefore the angle of the polarization is 45 degrees with respect to a vertical axis as well, which could be the common linear axis of DeGroof or length of the display). Therefore it would have been obvious to one of ordinary skilled in the art at the time the invention was made to have added the film 4 of Grimm to the LCDs of Christie as modified by DeGroof because to provide a compact image display device which provides stereoscopic viewing with an excellent stereoscopic viewing impression (col. 2, lines 8-10).

Christie, DeGroof, and Grimm do not mention right and left circular polarized light.

Jachimowicz teaches wherein the polarization is modified by adding quarter wave plates (48, Fig. 2), respectively, to the light paths (e.g. 20 and 16) so that the images from the respective displays as viewed via the beam splitter (22) are separated by right and left circular polarized light (col. 3, lines 57-59). Therefore it would have been obvious to one of ordinary skilled in the art at the time the invention was made to

have added the right and left circular polarized light of Jachimowicz to the display system of Christie as modified by DeGroof and Grimm because to provide the viewer with a full color 3D image screen (col. 3, lines 65-66).

Claim 28 additionally recites a new limitation of “wherein the polarized light outputs of the pair of display devices are polarized along the same direction”

Christie teaches the polarized light outputs of the pair of display devices are polarized along the same direction (both output polarizations of the image LCDs are directed toward a projection lens assembly 210, therefore the output polarization of the displays is in the same directed toward the lens assembly 210).

Claim 37 recites a new limitation of “wherein the beam splitter combines images while rotating the plane of linear polarization or sense of circular polarized light".

Christie teaches the beam splitter (207) combines images (as can be seen in Fig. 3 the beam splitter combines the two images from the display of lamps 200r and 200l) while rotating the plane of linear polarization or sense of circular polarized light (the linear polarization of the light outputted by the display of lamp 200r is rotated by 90 degrees, therefore the beam splitter combines and at the same time rotates the linear polarization of the light outputted by the display of lamp 200r).

As to claim 9, Jachimowicz teaches circular polarization is created by a single quarter wave plate (col. 3, lines 57-59) located between the beam splitter and the eye of

a viewer (as can be seen in Fig. 2, the quarter wave plate is between the beam splitter and the eye of a viewer).

As to claim 18, Jachimowicz teaches the images are color images (e.g. red, green, blue), each being composed of an assemblage of lines of different respective colors (20, 16, and 26), and wherein

the color image from the first display is an arrangement in a one sequence (color image red is in an "s" polarization sequence) and the color image from the second display is in an arrangement in the opposite sequence (color image green is in a "p" polarization sequence).

As to claim 21, Jachimowicz teaches inverting the image data for one of the images (e.g. inverting the image data for the red image display by projection lens) for presenting for viewing in substantially superposed relation to the other image (the green image data is not inverted and now is located over the inverted red image data, see fig. 2).

As to claim 29, Christie teaches wherein the images can be separated based on polarization (as can be seen in Fig. 3, the polarized lights are outputted from 205r and 205l, these two polarized lights are separated and are combined with a beam splitter).

As to claim 31, Christie teaches the displays are liquid crystal displays (col. 9, lines 9-12).

As to claim 40, Jachimowicz teaches the light incident on the beam splitter from the two displays (the beam transmitted to beam splitter 22) has circular polarization (circular polarization of “s” and “p”) in the same sense, and wherein the images can be separated based on polarization (the images of polarization in “s” are transmitted to the right eye and images of polarization in “p” are transmitted to the left eye).

7. Claims 10, 11, and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Christie in view of DeGroof and further in view of Jachimowicz.

As to claim 10, this claim differs from claim 8 only in that the limitations

“wherein the images can be separated based on polarization”; and

“wherein the polarization for both displays is circular in the same sense” are additionally recited.

“wherein the displays each output polarized light incident on the beam splitter"

Christie teaches the displays each output polarized light incident on the beam splitter (as can be seen in Fig. 3 the displays output polarized light incident on the beam splitter 207),

“the images can be separated based on a reversal of direction of the polarization of light from the display where the other image is reflected by the beam splitter",

Jachimowicz teaches the images (images from Red image display, Green image display, and Blue image display) can be separated (s polarization and P polarization) based on a reversal of direction of the polarization of light from the display (ECR 46 switches polarization states, that is “S” to “P” and vice versa, and also lens 52 reverses

the direction of the polarized light so that an image from the top of the lens is projected on the bottom of the screen), (col. 3, lines 32-35) where the other image is reflected by the beam splitter (image from the RED image display is reflected by the beam splitter 22), and wherein the polarization for both displays is right handed circular polarization or left-handed circular polarization (col. 3, lines 57-60), (the displays have "S" or "P" linear polarizations wherein these polarizations could be converted to left and right circular polarization states, thus the displays have either a left or right circular polarization).

Therefore it would have been obvious to one of ordinary skilled in the art at the time the invention was made to have added the right and left circular polarized light of Jachimowicz to the display system of Christie as modified by DeGroof and Grimm because to provide the viewer with a full color 3D image screen (col. 3, lines 65-66).

As to claim 11, Jachimowicz teaches the beam splitter combines images from both displays (e.g. red and green image displays) to provide viewable overlapping images (projection lens causes the viewable images to overlap and displays the image on the screen) that respectively have circular polarization in opposite directions (linear polarizations may be converted to left and right circular polarization).

As to claim 13, DeGroof teaches the displays are at an angle greater than 90 degrees to about 1 70 degrees relative to each other (the displays have an angle between 90 and 120 degrees), (col. 2, lines 66-67).

As to claim 14, DeGroof teaches the displays are at an angle of from about 110 degrees to about 140 degrees relative to each other (the displays have an angle between 90 and 120 degrees), (col. 2, lines 66-67).

As to claim 15, DeGroof teaches the displays are at an angle of approximately 120 degrees relative to each other (the displays have an angle between 90 and 120 degrees), (col. 2, lines 66-67).

8. Claims 24 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Christie in view Grimm (U.S. Patent No. 5,638,082) and further in view of Ohtani (U.S. Patent No. 5,519,485).

As to claim 24, Christie teaches a display system, comprising,

a first display device having a length and a width as can be seen in Fig. 2A, the polarizer 160 and liquid crystal element 162 are located in front of the displays therefore the displays have a length and width), and optical polarization characteristics (LCD 205l),

and having optical polarization characteristics (LCD 205r), (col. 9, lines 29-33),

the second display device having length and a width as can be seen in Fig. 2A, the polarizer 160 and liquid crystal element 162 are located in front of the displays therefore the displays have a length and width), that are being at an angle to the first display (there is a 90 degrees angle between the two displays)

a beam splitter (207) at the bisectrix of the angle between the first and second displays (see fig. 3) combining in superimposed viewable relation along a common light path images from the second display with images from a corresponding area of the first display (the beam splitter combines the images outputted from the LCDs 205r and 205l) by transmitting an image from one display (the beam from LCD 205l is transmitted) and reflecting an image from the other display (the beam from LCD 205r is reflected).

Christie further teaches (both output polarizations of the image LCDs are directed toward a projection lens assembly 210, therefore the output polarization of the displays is in the same directed toward the lens assembly 210);

Christie does not mention the optical polarization of the light incident is at an angle of 45 degrees relative to the length and width of the displays.

Grimm teaches a vectograph film 4 disposed directly in front of the LCD, therefore one skilled in the art would be able to place the film 4 in front of the LCDs 205r and 205l so that the polarization axis of the polarization is rotated by 45 degree (col. 6, lines 44-46), (since the angle of the polarization is 45 degrees with respect to a horizontal polarization axis of filter 2, which could be the width of the display, therefore the angle of the polarization is 45 degrees with respect to a vertical axis as well, which could be the common linear axis of DeGroof or length of the display). Therefore it would have been obvious to one of ordinary skilled in the art at the time the invention was made to have added the film 4 of Grimm to the LCDs of Christie because to provide a compact image display device which provides stereoscopic viewing with an excellent stereoscopic viewing impression (col. 2, lines 8-10).

Christie and Grimm do not mention the second display is smaller than the first display.

Ohtani teaches the second display (412) is smaller than the first display (411), (col. 3, lines 64 - col. 4, line 4). Therefore it would have been obvious to one of ordinary skilled in the art at the time the invention was made to have added the display sizes of Ohtani to the display system of Christie as modified by Grimm because the second screen serves as to display a stereo image falling within a range displayed by the first display at a second magnification larger than the first magnification (col. 4, lines 4-7).

As to claim 39, Christie teaches at least part of the first display device other than said corresponding area is directly viewable (the part of display other than the corresponding area is viewable to a viewer because light from the image LCDs is combined by a beam splitter that directs the light toward a projection lens 210, the projected light is send to the viewer, (col. 9, lines 15-19).

9. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Christie in view of Grimm (U.S. Patent No. 5,638,082), and further in view of Ohtani and Jachimowicz.

As to claim 38, Jachimowicz teaches the beam splitter (22) combines images (images 20 and 16 are combined) while rotating the plane of linear polarization or sense of circular polarized light (the beam splitter combines the image data while a circular polarized light is transmitted to the beam splitter by circular polarizers “s” and “p”).

Therefore it would have been obvious to one of ordinary skilled in the art at the time the invention was made to have added circular polarized light of Jachimowicz to the display system of Christie as modified by DeGroof because to provide the viewer with a full color 3D image screen (col. 3, lines 65-66).

Response to Arguments

10. Applicant's arguments with respect to claims 1, 3-6, 8-11, 13-21, 24, 28, 29, 31, 35-40 have been considered but are moot in view of the new ground(s) of rejection.

Prior art reference of Grimm (U.S. Patent No. 5,638,082) has been added to read on the newly added limitations to the independent claims.

Applicant argues that Christie fails to disclose the claimed display systems and display methods including a pair of displays wherein the polarization of light incident on the beam splitter is along the same direction at 45 degrees to the length and width of the displays.

Examiner would like to point out that the term "along the same direction" is still broad and requires further details in the claims. The term "along the same direction" could be interpreted as the light beam from both displays is traveling toward a screen or viewer. Also the newly added reference of Grimm reads on the polarized light is at 45 degrees to the linear axis, wherein as can be seen in Fig. 1b the polarized film 4 could be placed in front of displays of Christine so that the polarized light has a 45 degree angle to the vertical or horizontal axis. Examiner would like to further explain that by placing the filter 4 of Grimm on the displays of Christie the polarized light from the

displays are in the same direction wherein the direction of the polarized light is from the lower left toward the upper right of the respective displays, wherein the polarized lights have an angle of 45 degrees relative to horizontal or vertical axis.

Applicant argues that Christie has been found to disclose a pair of displays having orthogonal polarization, wherein disclosure of displays having orthogonal polarization is insufficient to support a rejection of displays where polarization is the same at 45 degrees to the length and width of the displays or displays wherein polarization of light incident on the beam splitter from each display is along the same direction at 45 degrees to the length and width.

Examiner would like to point out that claim 1 does not mention the displays are not orthogonal. In claims 3-5 applicant mentions the angle between the displays is greater than 90 degrees. The prior art reference of DeGroof teaches the display have an obtuse angle, therefore they displays can be in an obtuse angle.

The term “polarization in the same direction” could be interpreted as the direction of the polarized light is toward a same destination. For exampled in Christie the polarized light is toward the same direction, which is the viewer. Examiner has explained "same direction" as outputted polarized light is directed in a light path toward a projection lens or lens assembly.

Applicant argues that DeGroof and Jachimowicz have been found to cure the noted deficiencies of Christie with respect to the pending independent claims.

Examiner respectfully disagrees because the prior art reference of DeGroof teaches displays are at an obtuse angle wherein by adding this limitation to Christie the

display are going to be in an obtuse angle and the polarization of the display is not an orthogonal polarization. Degroof teaches the angle of the displays can be between 90 and 120 degrees. therefore if the angle is at or close to 120 degrees then the displays are in an obtuse angle and no linger orthogonal to each other.

Degroof, col. 2, lines 32-40 teaches the display being orthogonal to each other, however, col. 2, lines 66-67 teaches the display can have an angle between 90 – 120 degrees.

Applicant argues that in claim 24, Christie fails to disclose the claimed displays system, including a first display having optical polarization characteristics and a second display smaller in area than the first display. Examiner respectfully disagrees because the prior art reference of Ohtani specifically mentions the second display is smaller than the main screen. Therefore, one of the displays is smaller than the other one. Examiner suggests that the applicant should mention the size of the displays in more details along with the size of the beam splitter according to Fig. 16 of current application.

Applicant further mentions that Fig. 1 of Ohtani shows display 41 and 42 being of the same size. Examiner would like to point out that in col. 4, lines 3-4 specifically mentions one display is smaller than the other display.

Applicant mentions that Ohtani fails to disclose the display system arranged as claimed in claim 24 based on Fig. 16. Examiner would like to point out that the explanation in claim 24 is broad and applicant should describe Fig. 16 in better and more details in the claim. Ohtani mentions one of the displays is smaller than the other

display and this limitation reads on the limitation of claim 24. Therefore Ohtani teaches the limitation of one display being smaller than the other display.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

SUDO (U.S. Pub. No. 2001/0012054) teaches a stereoscopic image display apparatus for displaying a stereoscopic image, which is obtained by alternately arranging stripe parallax images R and L corresponding to the right and left eyes, in a window includes a parallax barrier for a stereoscopic vision.

Inquiry

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to PEGEMAN KARIMI whose telephone number is (571)270-1712. The examiner can normally be reached on Monday-Thursday 9:00am - 5:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chanh Nguyen can be reached on (571) 272-7772. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Pegeman Karimi/
Examiner, Art Unit 2629
August 4, 2010

/Chanh Nguyen/
Supervisory Patent Examiner, Art Unit 2629